UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,597	02/28/2002	Thomas W. Lanzatella	1557.002US1	1885

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B. NOEL KIVLIN
MEYERTONS,HOOD,KIVLIN,KOWERT, & GOETZEL, P.C.
P.O. BOX 398
AUSTIN, TX 78767-0398

EXAMINER
TRUONG, CAM Y T

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	10/086,597	LANZATELLA ET AL.
	Examiner	Art Unit	
	Cam Y T. Truong	2162	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). '
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 September 2005</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-60* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Applicant has canceled claims 1-40 and added claims 41-60 in the amendment

file on 9/2/2005.

Claims 41-60 are pending in this Office Action.

Claim Objections

2. Claim 47 objected to because of the following informalities: the word "clam" in line 1,

page 4 should be written as "claim". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3.   Claims 46-47, 53-54, 59-60 recite the limitation "the first and second storage

media" in pages 4-9. There is insufficient antecedent basis for this limitation in the

claims.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 41-45, 48-52, 55-58 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dings (US 6934725) in view of Ohran (US 6085298).

As to claim 41, Dings teaches the claimed limitations:

"a first computing device and a second computing device" as (fig. 1A, col. 4, lines 45-60);

"a first storage medium and a second storage medium" as (fig. 1A, col. 5, lines 10-20);

"wherein the first computing device is configured to:

initiate a backup operation of a set of data" as (col. 4, lines 60-67);

"send a logical representation of a frozen image of the set of data to the
        second computing device, wherein the logical representation includes
        a first mapping of a portion of the frozen image to a first region of the
        first storage medium" as a performing an extent map and update for
        any files. This file is not a frozen image (col. 7, lines 50-60; col. 3,
        lines 50-60); and

"wherein the second computing device is configured to complete the backup
operation using the frozen image, wherein said completing includes:
receiving the logical representation;
prior to backing up data of the portion of the frozen image, determining whether
        the first mapping of the portion of the frozen image remains valid; and
in response to determining that the mapping is no longer valid,
        obtaining an updated mapping of the portion of the frozen image;
        accessing data of the portion of the frozen image from the first storage
                medium using the updated mapping; and

backing up the data of the portion of the frozen image to the second

storage medium" as (col. 3, lines 50-60; col.7, lines 53-65).

Dings does not explicitly teach the claimed limitation "frozen image".

Mutalik does not explicitly teach the claimed limitation "frozen image". Ohran

teaches that since the data is preserved by a snapshot at time t1, the data will be

available for transferring to the backup storage device even though new data is written

to the mass storage device after time t1 (col. 11, lines 38-42). Further, applicant

defined that the term "frozen image" as the data is stabilized at a point in time by using

snapshot (page 13, lines 24-27; page 10, lines 3-5). Thus, the preserved data by a

snapshot at time t1, which is a stable version of the data, is represented as a frozen

image of the data.

It would have been obvious to a person of an ordinary skill in the art at the time

the invention was made to apply Ohran's teaching of preserving the data by a snapshot

at time T1 for transferring to the backup storage device to Mutalik's system in order to

prevent changes to the data during the backup process (col. 3, line 50) and further to

preserve the original data of the primary mass storage device during the backup

process.

As to claims 42, 49 and 56, Dings does not explicitly teach the claimed limitation

"wherein said completing further includes: in response to determining that the first

mapping remains valid, accessing data of the portion of the frozen image from the first

storage medium using the first mapping; and backing up the data of the portion of the

frozen image to the second storage medium" as (col. 9, lines 30-40).

As to claims 43, 50 and 57, Dings does not explicitly teaches the claimed

limitation "wherein the first computing device is further configured to associate a

configuration identifier with the frozen image, and wherein said determining whether the

first mapping of the portion of the frozen image remains valid comprises determining

whether the configuration identifier remains unchanged" as (fig. 9, lines 5-25; col. 7,

lines 53-65).

As to claims 44, 51 and 58, Dings teaches the claimed limitation "wherein the

updated mapping maps the portion of the frozen image to a second region of the first

storage medium" as (fig. 7, col. 4, lines 60-67).

As to claims 45 and 52, Dings teaches the claimed limitation "wherein the logical

representation includes a chain of two or more store extents including a logical storage

extent and a physical storage extent" as (col. 3, lines 50-60).

As to claims 48 and 55, Dings teaches the claimed limitations:

"initiate a backup operation of a set of data from a first computing device" as

(fig. 1B);

"send a logical representation of a frozen image of the set of data from the

first computing device to a second computing device, wherein the

logical representation includes a first mapping of a portion of the

frozen image to a first region of a first storage medium" as a

performing an extent map and update for any files. This file is not a

frozen image (col. 7, lines 50-60; col. 3, lines 50-60); and

"complete the backup operation from the second computing device using the

frozen image, wherein said completing includes: receiving the logical

representation; prior to backing up data of the portion of the frozen

image, determining whether the first mapping of the portion of the

frozen image remains valid" as (fig. 7, col. 7, lines 53-60);

"in response to determining that the mapping is no longer valid,

obtaining an updated mapping of the portion of the frozen

image;

accessing data of the portion of the frozen image from the

first storage medium using the updated mapping; and

backing up the data of the portion of the frozen image to a second storage medium" as

(col. 7, lines 53-60; col. 4, lines 60-67).

Dings does not explicitly teach the claimed limitation "frozen image". Ohran

teaches that since the data is preserved by a snapshot at time t1, the data will be

available for transferring to the backup storage device even though new data is written

to the mass storage device after time t1 (col. 11, lines 38-42). Further, applicant

defined that the term "frozen image" as the data is stabilized at a point in time by using

snapshot (page 13, lines 24-27; page 10, lines 3-5). Thus, the preserved data by a

snapshot at time t1, which is a stable version of the data, is represented as a frozen

image of the data.

It would have been obvious to a person of an ordinary skill in the art at the time

the invention was made to apply Ohran's teaching of preserving the data by a snapshot

at time T1 for transferring to the backup storage device to Dings' s system in order to

prevent changes to the data during the backup process (col. 3, line 50) and further to

preserve the original data of the primary mass storage device during the backup

process.

6.   Claims 46, 53, and 59 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dings (US 6934725) in view of Ohran (US 6085298) and further in

view of Dunham et al (or hereinafter "Dunham") (US 6714952).

As to claims 46, 53, and 59, Dings teaches the claimed limitation "wherein the

instructions are further computer executable to use input/output operations provided by

an operating system in use at the second computing device to access the first and

second storage media (col. 4, lines 45-65).

Dings does not explicitly teach the claimed limitation "wherein the first and

second storage media are linked to the second computing device via a storage area

network (SAN)". Dunham teaches the backup restore/server 30 is connected to SAN.

File servers 16a and 16b are connected to the SAN 18 which controls access to various

storage devices 20a-20c upon which different hosts (col. 4, lines 6-10).

It would have been obvious to a person of an ordinary skill in the art at the time

the invention was made to apply Dunham's teaching of connecting the backup

restore/server 30 to SAN to Dings's system in order to enable direct high speed

connections between various storage elements and host systems (col. 4, lines 65-67;

col. 5, line 1) and further provide high bandwidth and high throughput storage for client

computers such as file servers, web servers and end user computers.

7.   Claims 47, 54 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Dings (US 6934725) in view of Ohran (US 6085298) and Kodama et al (or

hereinafter "Kodama") (US 6542962).

As to claims 47, 54 and 60, Dings does not explicitly teach the claimed limitation

"wherein the first and second storage media are linked to the second computing device

via a storage area network (SAN), and wherein the instructions are further computer

executable to use error handling facilities provided by an operating system in use at the

second computing device to detect and handle any errors produced during the

accessing of the first storage medium and the backing up to the second storage

medium. Kodama teaches that a server processor 12 will get its first indication of a

problem with its allocated disk storage when, at step 90, and error message from the file

system, indicating that an error has been received in connection with an I/O read

request. The error message will further indicate that the allocated disk storage unit 20

has failed. If such as an error is received, the receiving server processor 12 will send

an failover message to Mount Manager 20. The above information shows that an error

processing associated with an I/O request is perform by the processor as the operating

system (col. 8, lines 15-25). Dunham teaches the backup restore/server 30 is connected

to SAN. File servers 16a and 16b are connected to the SAN 18 which controls access

to various storage devices 20a-20c upon which different hosts (col. 4, lines 6-10).

It would have been obvious to a person of an ordinary skill in the art at the time

the invention was made to apply Kodama's teaching of processing received error

message in connection with an I/O read request by a server processor and Dunham's

teaching of connecting the backup restore/server 30 to SAN to Dings 's system in order

to enable direct high speed connections between various storage elements and host

systems (col. 4, lines 65-67; col. 5, line 1), provide high bandwidth and high throughput

storage for client computers such as file servers, web servers and end user computers

and further to reduce minimum conflict to other read and/or write operations conducted

at or about the same time by other processor units (col. 2, lines 12-14).

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure

Grubbs et al (US 6829688).

Contact Information

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cam Y T Truong whose telephone number is. (571) 272-4042. The examiner can normally be reached on Monday to Firday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cam-Y Truong
Patent Examiner
Art Unit 2162
9/22/2005